

(No Model.)

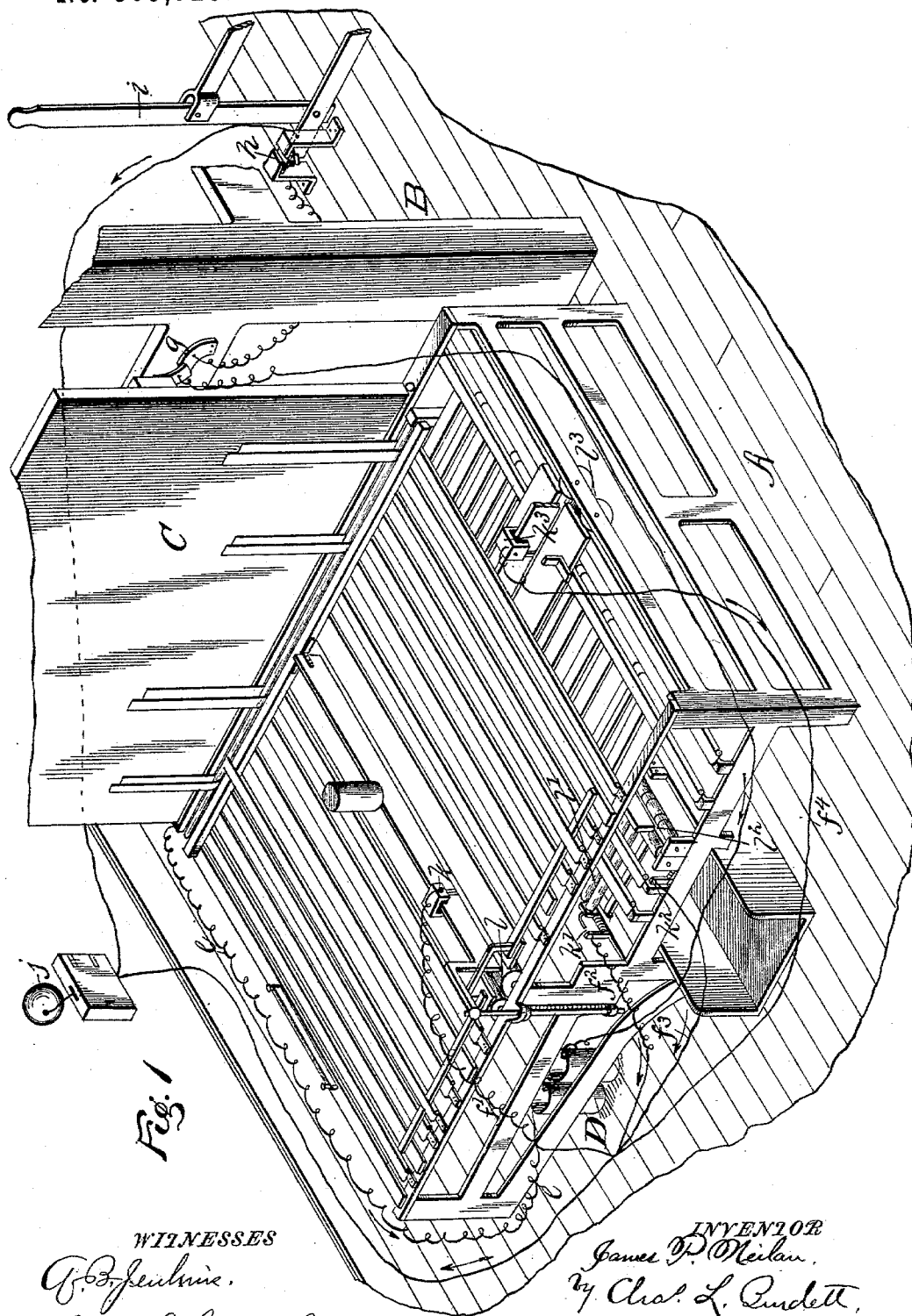
2 Sheets—Sheet 1.

J. P. NEILAN.

ALARM DEVICE FOR FOLDING MACHINES.

No. 569,723.

Patented Oct. 20, 1896.



WITNESSES
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2

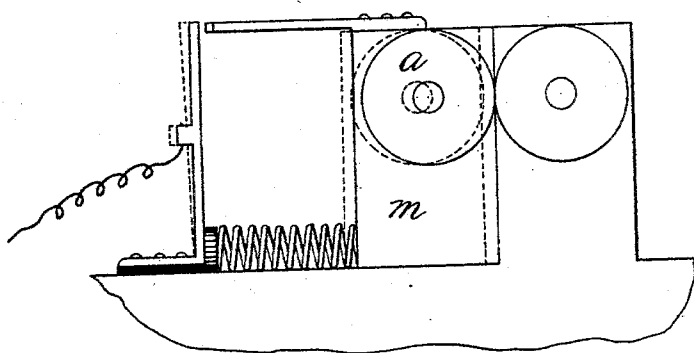


Fig. 3

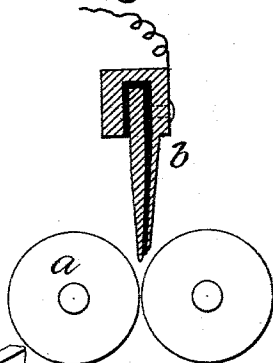


Fig. 4

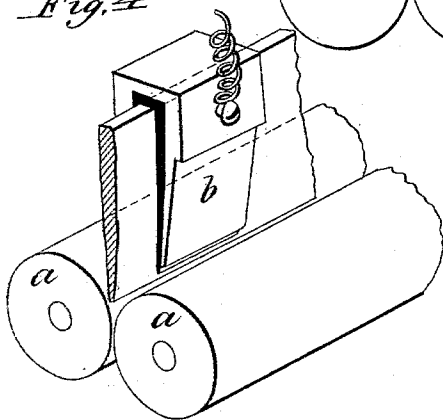
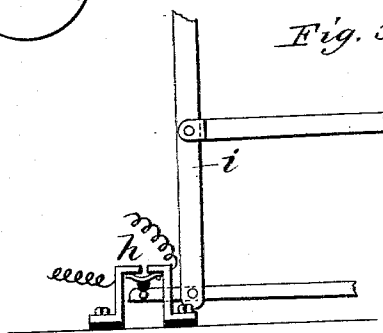


Fig. 5



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES P. NEILAN, OF NEW LONDON, CONNECTICUT.

ALARM DEVICE FOR FOLDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 569,723, dated October 20, 1896.

Application filed February 15, 1892. Serial No. 421,544. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. NEILAN, of New London, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Electrical Alarm Devices for Printing-Presses and Folders, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide an apparatus by means of which a folder that is used in connection with a printing-press for folding papers will indicate automatically the condition of the work and by means of alarm devices warn the attendant when the folder is in operation and also when it does not operate properly.

To this end my invention consists in the details of the several parts making up the alarm device as a whole and in their combination with the folder, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective view of a folder, showing the method of connecting up the alarm device with the machine. Fig. 2 is a detail view, on enlarged scale, of the alarm device used in connection with two of the folding-rollers. Fig. 3 is a detail view, on enlarged scale in section, of a folding-knife and illustrating the method of operation of the alarm device in connection with two of the folding-rollers. Fig. 4 is a detail perspective view of a portion, of a pair of rolls and knife and of a clamp attached to the latter. Fig. 5 is a detail view showing the manner of operating the switch by the starting-lever of the press.

In the accompanying drawings, the letter A denotes a paper-folding machine that is ordinarily used in connection with a paper-printing press, a part of the frame B of which only is shown. Along one side of the folder A is hinged a flat delivery-board C, which, when the folder is not in use, lies flat down upon the upper surface of the folding-frame, but has a vertical position such as shown in the drawings when the folder is to be used for folding papers. The folder comprises a series of tapes for guiding the paper and sets of rolls arranged in pairs and at right angles to each other. A knife is arranged in

connection with each of the pairs of rolls centrally between them and overhanging them in such position that when the knife is moved toward the rollers it will force the paper down between them and fold it by its passage between them. There is nothing that is novel with me in any of these features, but my invention resides in the combination, with such a structure, of certain alarm devices operated by means of electricity and the moving of certain parts to make or break the circuit through the connecting-wires.

The alarm devices are operated by electricity, and as a source of this power a battery D or a dynamo may be used. The main wire *e* connects one pole of this battery with the frame of the press and of the folder while from the other pole another branch of the main wire extends to an automatic circuit-closer *g*, that is operated by the delivery-board, from there to a circuit-closer *h*, that is operated by the movement of the starting-lever *i* of the press, from there to the bell *j*, and thence to the several points that are to be protected by the alarm device.

The electric circuit is controlled through the movement of the starting-lever to start the press by causing the circuit-closer placed at this point to close the circuit. Any well-known form of circuit-closer may be used for this purpose. This will be accomplished only when the folder is in operation, for the reason that when the folder is not in operation the circuit is broken at *g* by reason of the delivery-board lying down upon the open surface of the folding-frame. The delivery-board is hinged to the frame, as shown, and is swung downward onto the frame of the folder when not in use, and this may be done by hand or by mechanism arranged for the purpose. The circuit is broken and not made continuous at the point of connection between the circuit-closer and the starting-lever in order to insure the stopping of the ringing of the bell by the movement of the lever to stop the press, it being obvious that if the line were continuous at this point the bell would continue to ring after the press had been stopped should one of the knives remain in contact with the rolls. This construction also saves short-circuiting the battery. The circuit-closers described in connection with

the spring-journals also act thereon in a similar manner, so that when the paper clogs and opens these journals wide enough to give the attendant an alarm he automatically stops the ringing of the bell at the time he throws the lever over to stop the press. One branch, f' , extends to the clamp k , that is attached to the knife appurtenant to the pair of rolls l . Another branch, f^2 , extends to a circuit-closer k' , that is operated in connection with a pair of rollers l' . Another branch, f^3 , extends to a like circuit-closer k^2 , that operates in connection with the pair of rollers l^2 , and another branch, f^4 , extends to a clamp k^3 , that is attached to a knife that operates in connection with a pair of rollers l^3 .

The delivery-board circuit-closer g is so arranged that when the board is in the upright position a connection is made at this point, and when the delivery-board is in a horizontal position this circuit-closer remains open and the circuit broken. The object of this construction is to obviate the continuous ringing of the alarm in case the press was used without the folder, as when the first side of a paper is being printed, that would be caused by the clamp resting on the steel rollers at the time the folder was stopped and with no paper intervening. This printing of one side of the paper only necessitates the taking down of the delivery-board, and from the above construction the circuit is broken by the circuit-closer g during this operation. When the starting-lever is thrown into position to start the press, the circuit-closer h is closed and the main line made continuous at this point, but when the starting-lever is placed in the opposite position the circuit is broken and the alarm caused to stop sounding. When the circuit is closed at this point, any irregularity in the operation of the folder, as above noted, will cause the circuit to be closed at such point in the folder, and through the medium of the frame of the folder and the wire e , which is connected to said frame, a continuous circuit will be formed and the alarm caused to sound.

By means of the mechanism above described in case a sheet of paper has not entered the folder at the proper time between the first set of rollers the alarm is sounded and the pressman thus warned that the paper is not being fed to the folder and that the paper has been delayed or clogged in the delivery-tapes or for other reasons was not fed onto the folder at all. In fact, the alarm is caused to ring if for any reason any portion of the folder ceases to do its work properly.

Each of the clamps k and k^3 are insulated from the knives b , to which they are connected by any convenient means, as shown in Fig. 3, where such a clamp and knife are shown on enlarged scale. If in the operation of the folding-knife a sheet of paper is interposed between the edge of the contact-piece and the

steel roller, no connection is made, but if the paper is not present on the roller the circuit is closed and an alarm is rung by the bell j , and this calls the attention of the operator to the fact that the paper has not fed properly.

The other alarm devices are for the purpose of giving a signal when the rollers l' and l^2 become clogged by the passage of two or more papers, the devices being connected with these rollers. One of the rollers a in each pair is mounted in a spring-supported bearing m , that has a certain sliding movement toward and from the other roller of the pair. When the proper number of papers passes through the rolls, the break in the circuit is maintained, but if two or more papers pass between them the movable bearings of the one roll are moved over a sufficient distance to close the circuit and again to cause the bell to ring. Similar connections may be made with such other rolls or parts of the folder as may be needed to insure the perfect working of the parts to which they are attached. It will be seen that unless the press is running the alarm device is thrown out of operation and that unless the delivery-board is raised in proper position for the folder to operate in like manner the main-line circuit in the alarm device will be left open and the alarm device be made inoperative. These alarm devices therefore enable the attendant not only to control the operation of the folder but to know when it is operating properly.

I claim as my invention—

1. In combination with the movable delivery-board of a folding-machine, one member of a circuit-closer located on and operated by the delivery-board and the other member of the circuit-closer mounted in a fixed position with relation thereto, an electric circuit including an alarm, one pole of the battery of said circuit being connected to movable parts of the folder but insulated therefrom, and the opposite pole of said battery being connected with the frame of the folder, all substantially as described.

2. In combination with the starting-lever of a printing-press, a folder, a movable delivery-board mounted in operative relation to the folder, a circuit-closer borne on and operated by said lever, one member of a circuit-closer borne on and operated by the delivery-board and the other member of the circuit-closer mounted in a fixed position with relation thereto, and an electric circuit including an alarm, one pole of the battery being connected to the frame of the folder and the opposite pole with moving parts of the folder but insulated therefrom, all substantially as described.

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